

80/568976

WRITTEN DECISION
OF THE INTERNATIONAL
EXAMINATION AUTHORITY (SUPPLEMENTARY SHEET) International file reference
PCT/EP2004/051811

Re. Point I.,

IAP20 Rec'd DCM/DO 21 FEB 2006

Basis of the report

Reference is made to the following documents:

- D1: WO 01/10157 A (KONINKL PHILIPS ELECTRONICS NV) 8 February 2001 (2001-02-08)
- D2: US 2003/139170 A1 (HEO WON-SUK) 24 July 2003 (2003-07-24)
- D3: WO 01/11823 A (KONINKL PHILIPS ELECTRONICS NV) 15 February 2001 (2001-02-15)
- D4: WO 01/33884 A (KONINKL PHILIPS ELECTRONICS NV) 10 May 2001 (2001-05-10)
- D5: US 2002/080745 A1 (ZEIRA ELDAD ET AL) 27 June 2002 (2002-06-27)

Re. Point V.,

Reasoned statement with regard to novelty, inventive step and industrial applicability;

1 Technical area

The invention relates to a method for selecting a transmission channel for transmission of messages from a mobile terminal to a base station (**claim 1**), a method for the device-specific parts of this method (base station: **claim 14**, mobile terminal: **claim 15**), as well as to a corresponding embodied base station (**claim 16**) and mobile terminal (**claim 18**)

2 Prior art

Document D1 describes the closest prior art. As already explained for the PRACH in the UMTS standard cited in the application, the mobile terminal selects one of 16 signatures for the "access preamble" and sends this on the

random access packet channel. In this selection it takes account of the predefined assignment of "access preambles" to bit rates, as well as the current maximum bit rate of the base station available. If it then receives from the base station:

- a) a positive acknowledgement (ACK, "Acquisition Indicator on AICH"), it sends a "Contention Resolution Preamble" with the same power which must also be replied to by a corresponding confirmation signal "Contention Resolution Acknowledgement",
- b) a negative acknowledgement (NACK), it starts a new attempt after a specific time ($T_{backoff}$),
- c) nothing, it once more selects at random another "access preamble" and sends this with the power increased by one level.

The acknowledgement signal is also one of 16 signatures, with its inversion signifying a negative acknowledgement signal.

To avoid unnecessary wait times ($T_{backoff}$), there is no fixed assignment of the selected "access preamble" to a packet channel, and thus a negative acknowledgement does not have to be sent if a channel with the desired data rate is free but the channel assigned to this "access preamble" is occupied.

Instead, in parallel to the confirmation signal or the "Contention Resolution Acknowledgement" a further signature is transmitted to the mobile terminal which indicates the respective "channelization code" of this channel. This signature is taken from a second signature character sequence set of which the signatures are orthogonal to the signatures of the first signature character sequence set of the confirmation signal.

In D2 the sending of a negative acknowledgement signal is omitted for the same reason until other free PRACHs are available.

The base station from D3 provides information about packet channels available with a "Channel Availability" message, with the "access preambles" being dynamically assigned to the relevant data rates.

In D4 at the same time as the "access preamble"-specific positive and negative acknowledgement signals, additional rate-specific negative acknowledgement signals consisting of signatures of a second orthogonal signature character sequence set are sent

The method in D5 uses unused bits of the AICH at the end of the acknowledgement signal, a phase shift of the acknowledgement signal or the "Contention Resolution Acknowledgement" (inverted, not inverted) for transmission of the channel identities available.

3 Technical problem

The underlying system in the claimed invention can be seen as avoiding unnecessary wait times ($T_{backoff}$) if a fixed assignment of the selected access preamble to a channel is required and the channel assigned to the selected request signal is occupied.

4 Invention

in accordance with the invention this problem is solved by:

- a) **the base station** (claims 1, 14 and 16) on transfer of a first negative decision value with which the sending of a message on the requested transmission channel is refused to the terminal, sends a second positive decision value to the

terminal with the response signal, if the terminal is authorized to send a message on another transmission channel, and

b) **the terminal** (claims. 1, 15 and 18) on detection of the first negative decision value in the response signal, thoroughly further analyzes the response signal as to whether it contains a second positive decision value with which it is signaled to the terminal that it is authorized to send a message on another transmission channel, and which other transmission signals are available for this, and it sends to the base station on one of the available transmission channels.

Since this solution of a **simultaneous transmission of a negative and positive acknowledgement signal to a terminal** is not disclosed or even only approached by any of the documents currently available, and also there is nothing preventing a technical application, the requirements of Article 33(2), (3) and (4) are considered to be fulfilled.

The dependent claims define advantageous embodiments of the invention claimed in the independent claims. These thus likewise fulfill the requirements of Article 33(2), (3) and (4).

5 Remarks on the clarity of the international application

5.1 **Claim 4** does not meet the requirements of Article 6 PCT, since the object of the protection sought is not clearly defined. It is attempted in the claim to define the object through the result to be achieved. However only the object to be achieved is specified in this way. To remedy this deficiency it appears necessary to include the technical features necessary to achieve this result in the claim, or if these are already included in the subsequent claims, to

delete this claim.

- 5.2 The current formulation of the **claim 4** contravenes Article 6 PCT, since as a result of the indefinite article, the feature "a second decision value" does not have any unique reference to the corresponding previously specified feature from claim 1 and the claim is thus not clear. A similar objection then also applies to "the signature character sequence" in **claim 9**, which does not relate uniquely to one of the previously mentioned signature character sequences from claim 5.
- 5.3 The phrase used in **claims 5, 8 and 10** "signature character sequence ..., which is orthogonal to a first set of signature character sequences" is confusing and thus contravenes the requirements of Article 6 PCT. The formulation of this claim is thus in need of revision (see Page 20, lines 8-13).

6 Remarks regarding formal deficiencies of the application

To meet the requirements of Rule 5.1(a)(ii) PCT documents D1 and D2 should have been named in the description. The relevant prior art contained within them should have been briefly outlined.